Instructions

EP-120 and EC-120 Lubricators

3A0418E

EN

For single point lubrication of sliding and roller bearings, chains, open gears, guideways and other system components. For professional use only.

EP-120 Lubricators are used in areas that must be kept hygienically clean (e.g., food industry) and in environments which are highly contaminated, highly corrosive, or are regularly humid.

EC-120 Lubricators are used in mining, steel and automotive industries, as well as in mechanical and underwater applications.

58 psi (0.4 MPa, 4 bar) Maximum Working Pressure

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.

CE Ex I M2 c X

CE Ex II 2G c IIC 80°C X

CE Ex II 2D c 80°C X

PROVEN QUALITY. LEADING TECHNOLOGY.

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠WARNING

FIRE AND EXPLOSION HAZARD

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources, such as cigarettes and portable electric lamps.
- Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground all equipment in the work area.
- Use only grounded hoses.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

Special Conditions for Safe Use

Equipment must comply with the following conditions when operated in a potentially explosive atmosphere.

- The lubricator must be correctly installed with a grounded mounting clamp. See page 9 for instructions for correctly grounding and installing the grounding clamp.
- Do not clean lubrication canister with a dry cloth. Possibility of electrostatic charge exists.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDSs to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

⚠WARNING

PRESSURIZED EQUIPMENT HAZARD

Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Do not puncture, open or take lubricator apart.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

⚠WARNING

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

CALIFORNIA PROPOSITION 65

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

Models: *Include - lubricator canister, grease and activation screw*

EP-120 Lubricators

Part No.	MONTHS	Application
24J949	1	Lithium EP-2
24J950	1	Construction
24J951	1	Bearing
24J952	1	Milling
24J953	1	Food Grade H1
24J954	1	Synthetic Industrial
24J955	1	Ultra Spindle
24J956	1	Lithium EP-1
24J957	3	Lithium EP-2
24J958	3	Construction
24J959	3	Bearing
24J960	3	Milling
24J961	3	Food Grade H1
24J962	3	Synthetic Industrial
24J963	3	Ultra Spindle
24J964	3	Lithium EP-1
24J965	6	Lithium EP-2
24J966	6	Construction
24J967	6	Bearing
24J968	6	Milling
24J969	6	Food Grade H1
24J970	6	Synthetic Industrial
24J971	6	Ultra Spindle
24J972	6	Lithium EP-1
24J973	12	Lithium EP-2
24J974	12	Construction
24J975	12	Bearing
24J976	12	Milling
24J977	12	Food Grade H1
24J978	12	Synthetic Industrial
24J979	12	Ultra Spindle
24J980	12	Lithium EP-1

EC-120 Lubricators

Part No.	MONTHS	Application
24D855	1	Lithium EP-2
24D856	1	Construction
24D857	1	Bearing
24D858	1	Milling
24D859	1	Food Grade H1
24D860	1	Synthetic Industrial
24D861	1	Ultra Spindle
24D862	1	Lithium EP-1
24D863	3	Lithium EP-2
24D864	3	Construction
24D865	3	Bearing
24D866	3	Milling
24D867	3	Food Grade H1
24D868	3	Synthetic Industrial
24D869	3	Ultra Spindle
24D870	3	Lithium EP-1
24D871	6	Lithium EP-2
24D872	6	Construction
24D873	6	Bearing
24D874	6	Milling
24D875	6	Food Grade H1
24D876	6	Synthetic Industrial
24D877	6	Ultra Spindle
24D878	6	Lithium EP-1
24D879	12	Lithium EP-2
24D880	12	Construction
24D881	12	Bearing
24D882	12	Milling
24D883	12	Food Grade H1
24D884	12	Synthetic Industrial
24D885	12	Ultra Spindle
24D886	12	Lithium EP-1

Pressure Relief Procedure

1. Cover lubrication point and lubricator with a heavy rag to absorb any fluid that may leak out while loosening the canister.

2. Carefully unscrew lubrication canister and remove it from the lubrication point.

Component Identification

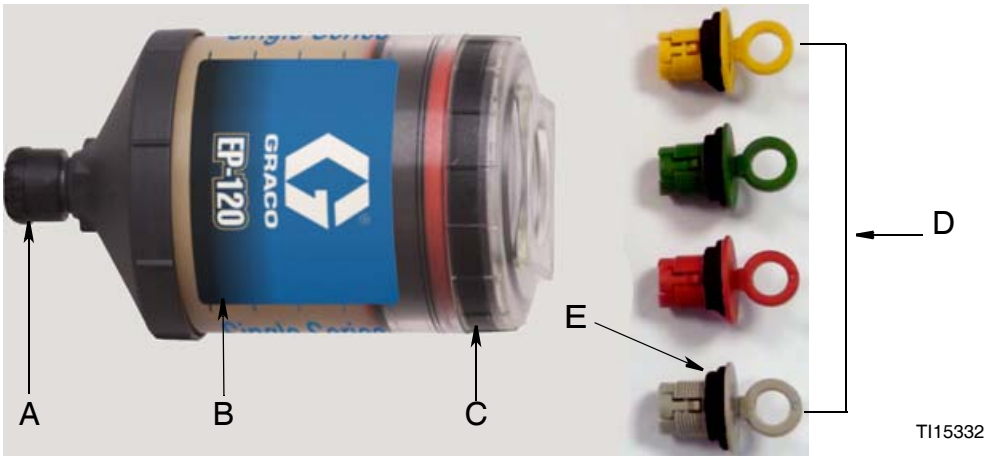


FIG. 1

A Lubricant Plug

B Lubrication Canister
NOTE: Canister cannot be refilled.

C Bottom

D Activator screw and ring-eyelet

E Seals

Installation and Setup

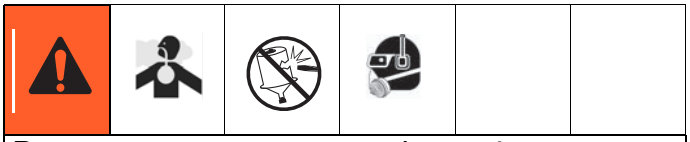
Determining Correct Mounting Method

NOTE:

- Direct mounting should be used for lubrication points that are easily accessible.
- Remote mounting is recommended if you answer **YES** to any of the questions below.

1. Is the ambient temperature at the lubrication point higher than +40°C (104°F)?
2. Is it necessary to remove protective screens, walls or other types of protection in order to reach the lubrication point?
3. Is the lubrication point exposed to high vibrations?
4. Is it difficult to access the lubrication point during operation of the machine?
5. Is the lubrication point exposed to mechanical forces such as falling materials?

Installation Guidelines



Do not puncture, open or take canister apart. Opening or breaking the canister will expose users to the fluid and gases contained inside.

- Before installing the lubricator, the lubrication points and any extensions must be adequately pre-lubricated with the same lubricant contained in the lubricator. A 400 gram lubricant cartridge for grease guns is available from Graco. See Parts, page 18 for a complete list of available lubricant cartridges.
- Install one lubricator per lubrication point.
- When oil is used for lubrication, a non-return valve (oil throttle) must be installed. This will prevent oil leakage from the lubricator. An oil throttle is available from Graco. See Parts, page 18.
- The grease nozzle of the lubricator has an R 1/4 male thread. If your application has a different thread you may need to use a reducer.
- Do not overtighten the plastic thread of the lubricator.
- For all metal to metal connections (i.e., extensions, reducers, etc.) make sure to use LOCTITE® 243* or equivalent (semi-tight screw locking).

**Loctite® is a registered trademark of the Loctite Corporation.*

Preparing for Installation

Most bearings require a pressure of 0.5 to 2 bar (7.2 to 29 psi) pressure (without tubes, extensions, angles, etc.). Use the following procedure to check the counter pressure of the application prior to installation.

NOTE:

- Be sure to use a lubricant cartridge that contains the same grease used in the application.
- The best measurement results are achieved during operation.

Checking the Counter Pressure

NOTE: *A 60 cc EM-Drive Lubricator containing the same lubricant you are dispensing is required to perform the Counter Pressure test correctly. Contact Graco Customer Service or your local Graco distributor to order this part.*

Graco recommends checking the counter pressure by connecting an EM-Drive Lubricator to a pressure manometer (user supplied).

A pressure manometer is a simple device that measures pressure output. To build a pressure manometer you need a pressure gage (*aa*), tee fitting (*bb*) and stop valve (*cc*). FIG. 2 shows a correctly assembled pressure manometer, connected to the lubricator and a lubrication point.

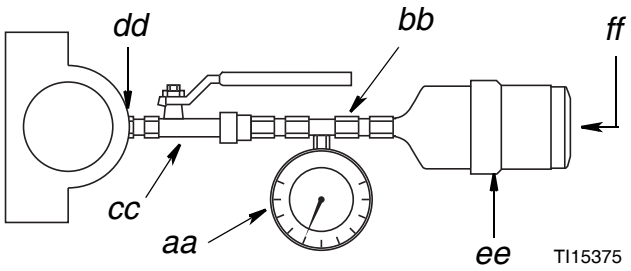


FIG. 2

aa	*Pressure Gage*
bb	*Tee Fitting*
cc	*Stop Valve*
dd	*Lube Point*
ee	*Lubricator*
ff	*ON / OFF Switch*

Counter Pressure Test Procedure

1. Clean the lubrication point to remove any potential contaminants.
2. Remove the plug (A).

3. Install lubricator unit into adapter (B).

4. Install reducers, extensions, grease line, etc. (if necessary).
5. Screw a pressure manometer into the lubrication point *(dd)* (FIG. 2, page 8).
6. Ensure the stop valve (*cc*) of the pressure manometer is open.
7. Attach lubricator and adapter (B) to the pressure manometer as shown in FIG. 2 and turn the switch to “ON” *(ff)*.
8. Run manometer for about 20 seconds. Observe gauge and repeat this procedure until pressure registered on gauge stays constant.
9. To determine counter pressure, wait approximately 5 minutes until system has relaxed. Do one more discharge by turning unit OFF; then ON again until it dispenses for **no more than 5 seconds**.
10. Wait approximately 5 more minutes to make sure system does not lose pressure and remains constant.
11. Disconnect adapter (B) from manometer.

NOTICE

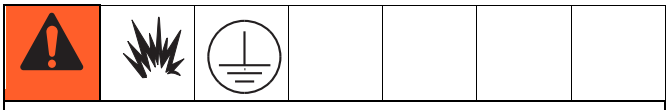
Do NOT disconnect lubricator from adapter (B). Screwing anything into end of lubricator a second time will damage self-sealing threads.

12. If counter pressure is 4 bar (58 psi) or higher, flush lubrication point with a grease gun.

    After flushing, repeat counter pressure test.

    If the counter pressure does not decrease you may need a different lubricant or lubricator canister. Contact Graco Customer service for assistance.

Grounding Clamp Installation



To reduce the risk of fire or explosion, equipment mounted in potentially explosive atmospheres must be correctly installed using a grounding clamp. Part No. 124304 is available from Graco Customer Service or your local Graco distributor.

EC-120 Models Only

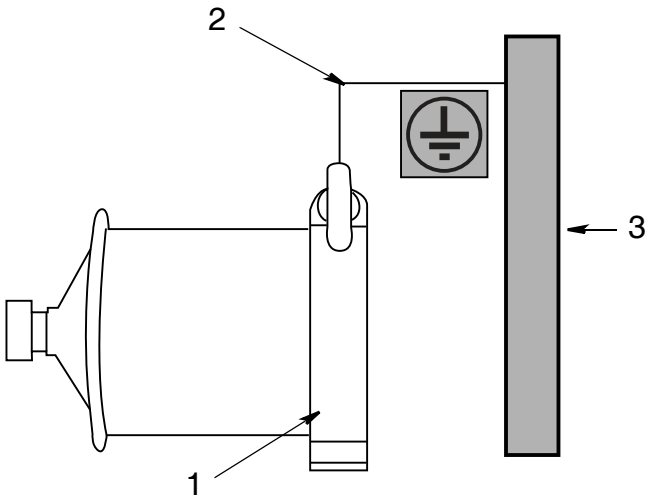


FIG. 3

1. Insert lubrication canister inside grounding clamp (1) making sure bottom of canister is flush mounted to the grounding clamp as shown in FIG. 3.

2. Attach a grounding cable (2) between the grounding bracket (1) and an earth contact (3) as shown in FIG. 3.

Priming / Prefilling Fittings and Grease Lines

All grease lines (extensions and tubes) must be primed/prefilled. Without priming/prefilling, the lubricator would first need time to fill the tubes with lubricant before it would actually supply lubricant to the lubrication point.

***Example*:** A tube that is 1/2 meter long x 6 mm (19.5 inches x 1/4 inch) diameter, requires about 14 ccm (1 Tablespoon) of lubricant. With a 12 month activator screw, the lubricator would need about 1-1/2 months to fill this tube.

FIG. 4 illustrates one way to pre fill using standard parts for a grease gun with extension thread M10 x 1.

FIG. 4

Remote Mounting Installations

- Installations up to 3 ft away from the lubrication point can be mounted with flexible tubes and a bracket. Refer to FIG. 5, FIG. 6 and FIG. 7 for examples of correct remote mounting installations
- Remote installations require a grease line. Graco recommends using a tube with an inside diameter of at least 6 mm (1/4 inch).

1. Select a position for the lubricator that is easy to access and protected from high-pressure water jets, falling materials, corrosive chemicals and extreme temperatures. Temperature must be below +40°C (+104°F).
2. Prime the grease line and all accessories with the same grease that is contained in the lubricator.
3. Secure grease lines with ties or similar means.

Direct Mounting

Reducer or oil throttle (optional)

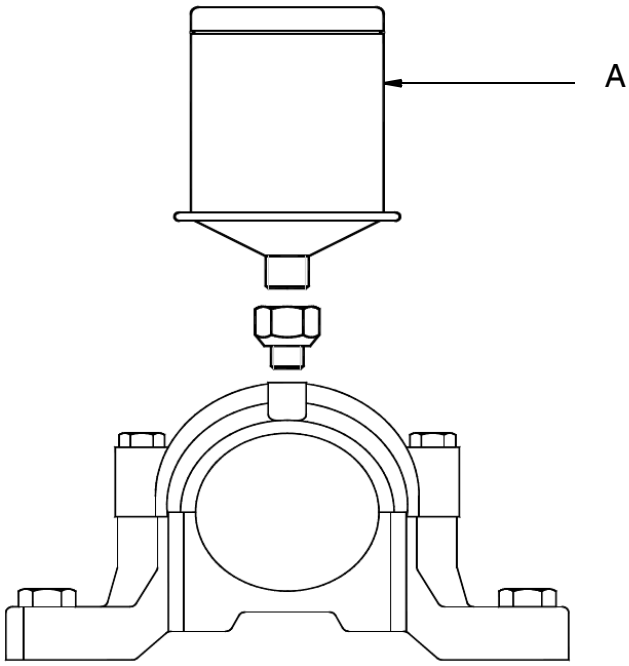


FIG. 5

A Lubrication Canister

With Tube and Grease

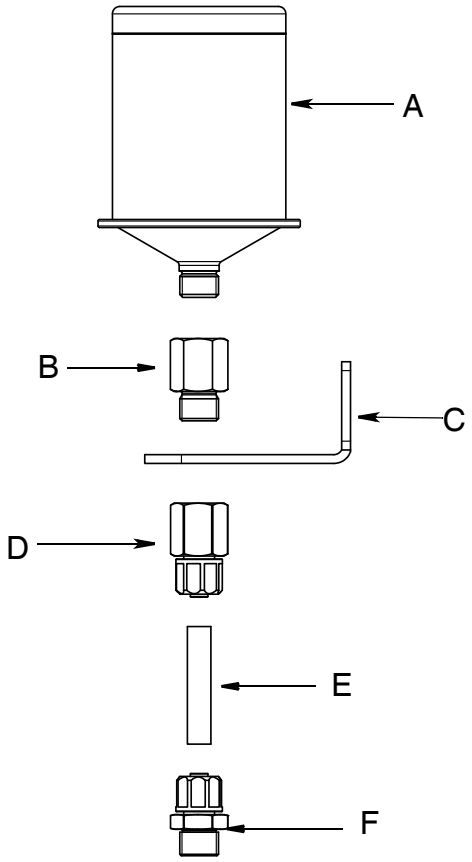


FIG. 6

A Lubrication Canister
B Insert for Bracket, 124088
C Bracket, 124087
D Tube connector (user supplied)*
E Nylon tube (user supplied)*
F Tube connection (User supplied)*

**Graco recommends only using tubes with an inside diameter of at least 6 mm (1/4 inch) and a maximum length of 1 meter (3 feet).*

With Tube and Oil

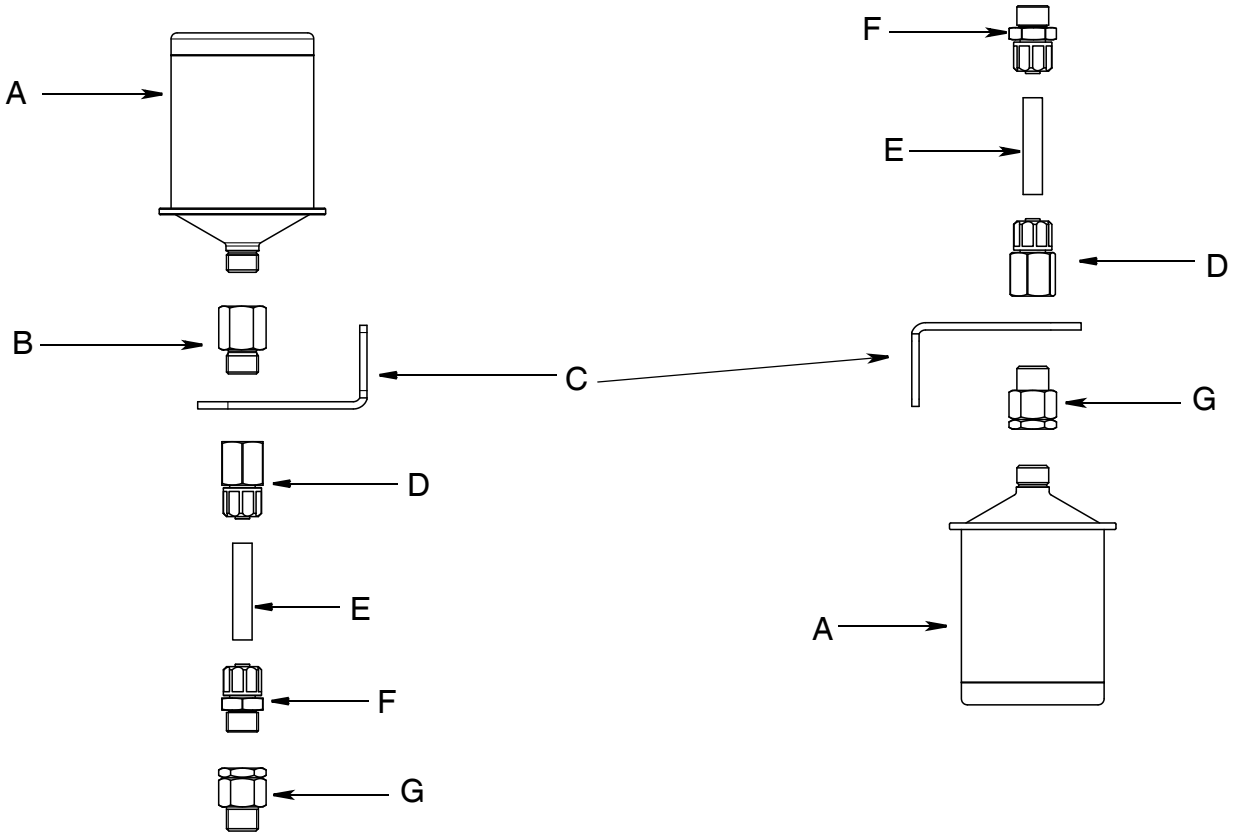


FIG. 7

A Lubrication Canister
B Insert for Bracket, 124088
C Bracket, 124087
D Tube connector (user supplied)*
E Nylon tube (user supplied)*
F Tube connection (user supplied)*
G Oil throttle, 124102

**Graco recommends only using tubes with an inside diameter of at least 6 mm (1/4 inch) and a maximum length of 1 meter (3 feet).*

Startup

NOTE:

- The lubrication period is determined by the color of the activator screw.
- Electrochemical lubricators are temperature and vibration dependent.

Refer to Table 1 to determine the correct activator screw and lubricator to use for your application and operating temperature. The data provided in this table is based on laboratory tests and under laboratory conditions and should be used as a general guideline only for selecting the discharge period. The actual discharge period is strongly influenced by various factors including the type of lubricant, ambient temperature, vibration and connection parts.

Table 1: EP-120 and EC-120 Lubricators*

	1 month		3 months		6 months		12 months	
Activator Screw Color	**Yellow**		**Green**		**Red**		**Gray**	
Average Temperature	Discharge Period (Months)	cc / Day	Discharge Period (Months)	cc / Day	Discharge Period (Months)	cc / Day	Discharge Period (Months)	cc / Day
0°C / +32°F	4	1	8	0.5	15	0.3	>18	<0.2
+10°C / +50°F	2	2	5	0.8	8	0.5	18	0.2
+20°C / +68°F	1	4	3	13	6	0.7	12	0.3
+30°C / +86°F	0.8	5	2	2	3	1.3	6	0.7
+40°C / +104°F	0.6	6.7	1	4	2	2	3	1.7

*Initial delay = approximately 1 day. (Time required until first lubricant discharge takes place without counter pressure.)

Activation

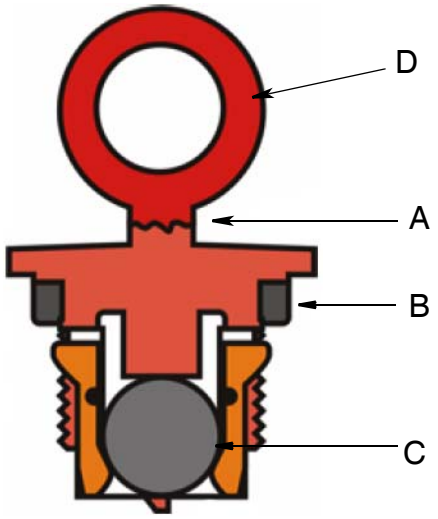


FIG. 8

A Intended breaking point
B Seal
C Gas generating pellet
D Top ring

Activate the lubricator prior to installation.

For the following instructions, unless otherwise instructed, refer to FIG. 8.

1. Verify the activator screw contains the gas generating pellet.

2. Hold the lubricator with the plug end facing down.

3. Screw the correct activator for your application into the bottom of the lubricator and hand tighten (FIG. 9). (See page 13 for activator options and/or Parts, page 18).

FIG. 9

4. When the activator is screwed in hand tight, insert a suitable tool through the top ring (D). Continue to tighten the activator until the ring breaks off at the intended breaking pint (A) (FIG. 10).

   DO NOT BREAK RING OFF BY HAND!

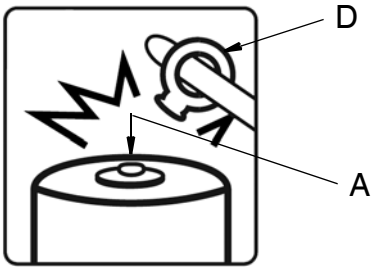


FIG. 10

Do not puncture, open or take canister apart. Opening or breaking the canister will expose users to the fluid and gases stored inside.

- Once installed, do not remove the activator from the lubricator at any time.
- After a lubricator is activated, the discharge period cannot be changed.

5. Shake the lubricator and listen for the pellet rattle inside the canister to insure that the gas generating pellet (C) (FIG. 8) has fallen from the activator into the bladder. This starts the chemical dispensing reaction that builds up pressure (up to 4 bar / 58 psi) and causes the piston to move forward.

6. Write the installation and replacement dates on the lubricator.

NOTE: Once a lubricator is activated, the discharge period cannot be changed. Do not remove the activator from the lubricator at any time.

Canister Installation

1. Remove lubrication plug (A) (FIG. 11).

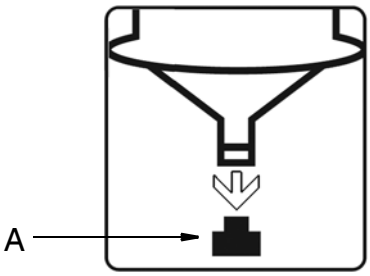


FIG. 11

2. Tightly screw the lubricator into the lubrication point by hand - tools are not necessary (FIG. 12).

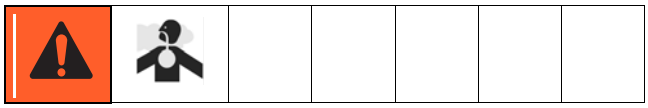
FIG. 12

3. Once installed, the lubricator should be inspected periodically.

Changing the Lubrication Canister

1. At the end of the lubrication period, the piston (red in all models) is clearly visible.
2. Unscrew lubrication canister and remove from grease port.
3. Manually purge the bearing to ensure the lubrication conditions have not changed.

Disposal

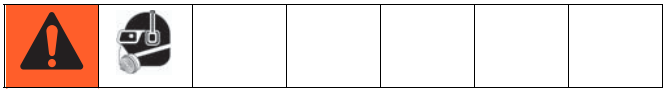


Dispose of hazardous fluid in approved containers, and according to applicable guidelines. Read the MSDS to know the specific hazards of the fluids you are using.

Storage

When lubricators are not immediately installed, they must be stored in a dry, dust free, sunlight protected room, indoors.

Troubleshooting



Malfunction	Possible Cause	Solution
No lubrication	No gas development	Slightly shake canister or tap on the activator screw (ring should be broken off)
	Still within activation period	See Startup information on page 13.
Grease spurts from lubricator when removed from service	Resistance to grease flow too high	Manually purge point to ensure that grease can be freely received by bearing.
		Reduce grease line length and/or increase line diameter
		Eliminate restrictions caused by small orifice fittings
		Use a higher pressure lubricator for dispensing
Grease dispensing too fast	Wrong activator screw installed	Install a new lubricator with a slower activator type installed
	Average ambient temperature or vibration is high for activator type	Remote mount lubrication canister away from heat source
		Use a temperature independent lubricator for dispensing
	For Oil Filled Lubricators Only: Oil throttle not installed	Install oil throttle

Malfunction	Possible Cause	Solution
Grease dispensing too slowly	Average ambient temperature too low for activator type	Select a different activator type
		Use a temperature independent lubricator for dispensing
	Resistance to grease flow too high	Manually purge point to ensure that grease can be freely received by bearing.
		Reduce grease line length and/or increase line diameter
		Eliminate restrictions caused by small orifice fittings
		Install a new lubricator with a faster activator type installed
		Select grease with better pumpability
	Counter pressure is too high	Check lubrication point
	Wrong activator screw	Install a new lubricator with a faster activator type installed

Parts

Miscellaneous Accessories

Part No.	Description
124087	BRACKET, plastic
124088	FITTING, insert, 1/4 m - 1/4 f
124089	BRUSH, pig hair, 1/4 fnpt - 3/4
124090	BRUSH, oil, 1 x 1.5
124091	BRUSH, oil, 1 x 2.4
124092	BRUSH, oil, 1 x 4
124093	BRUSH, link chain
124100	CLAMP, beam, 1”
124101	BRACKET, dual unit
124102	VALVE, check, oil throttle
124105	ADAPTER, 1/4 fnpt x 1/4 mnpt
124113	APPLICATOR, chain, felt
124114	BRUSH, nylon, 1/8 mnpt x 5/8
124115	BRUSH, nylon, 1/8 mnpt x 2
124304	BRACKET, grounding

Mounting Brackets

Part No.	Description
124094	BRACKET, mounting, small
124095	BRACKET, mounting, medium
124097	BRACKET, mounting, flat
124098	BRACKET, mounting, L
124099	BRACKET, mounting, bulkhead

Repair Kits

Part No.	Description
124109	KIT, accessory, purge

400 Gram Lubricant Cartridges

Part No.	Description
124176	CARTRIDGE, lubricant, Lithium EP-2
124177	CARTRIDGE, lubricant, Construction
124178	CARTRIDGE, lubricant, Bearing
124179	CARTRIDGE, lubricant, Milling
124180	CARTRIDGE, lubricant, Food Grade H1
124181	CARTRIDGE, lubricant, Synthetic Industrial
124182	CARTRIDGE, lubricant, Ultra Spindle
124183	CARTRIDGE, lubricant, Lithium EP-1

EM-Drive 60cc Models

(Used for counter pressure test only)

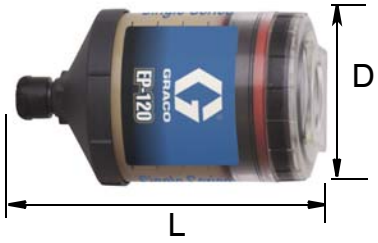
Part No.	Volume Output	Application
24E028	60CC	Lithium EP-2
24E029	60CC	Construction
24E030	60CC	Bearing
24E031	60CC	Milling
24E032	60CC	Food Grade H1
24E033	60CC	Synthetic Industrial
24E034	60CC	Ultra Spindle
24E035	60CC	Lithium EP-1

Technical Data

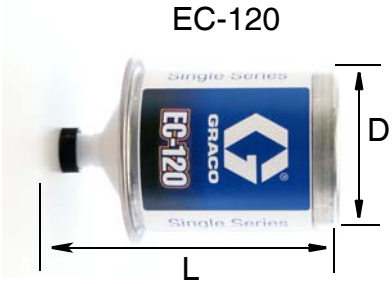
Housing Material	
EP-120	Transparent plastic with reinforced base
EC-120	Metal with flexible plastic end cone
Lubricants	Grease and oil
Drive	Electrochemical
Grease Nozzle Thread	R 1/4 male
Lubricant Volume	
EP-120 / EC-120	120 cc (4.1 oz)
Length (L)	
EP-120	111 mm (4.37 inches)
EC-120	99 mm (3.9 inches)
Maximum Diameter (D)	
EP-120	67 mm (2.64 inches)
EC-120	70 mm (2.76 inches)
Discharge Period	
EP-120 / EC-120	1, 3, 6, or 12 months
Temperature Range	
EP-120 / EC-120	0° C to +40 ° C (+32° F to +104° F)
Maximum Output Pressure	4 bar (58 psi)
Storage	
Conditions	Dry, dust free, no direct sunlight
Temperature	+20° C ± 5° C (+68° F ± 9° F)

Dimensions

EP-120



EC-120



Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.
Phone: 612-623-6928 **or Toll Free:** 1-800-533-9655, **Fax:** 612-378-3590

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Original instructions. This manual contains English. MM 3A0418
Patent information: www.graco.com/patents

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